BY ORDER OF THE
43D AIRLIFT WING COMMANDER

POPE AIR FORCE BASE INSTRUCTION 48-108

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Aerospace Medicine

POPE ERGONOMICS MANAGEMENT PROGRAM

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction establishes a Pope Ergonomics Management program, which includes back injury management. It provides responsibilities and procedures for worksite analysis, hazard prevention and control, medical management, and training and education. It establishes a Pope Ergonomics Working Group, and a Base Ergonomics Manager (BEM).

SUMMARY OF REVISIONS

Page 1-5, grammatical changes and formats; **2.2.5.** add (WMD) after Work-Related Musculoskeletal Disorders; change OPR. Page 3, **2.11.** take out (HAWC); in **2.12.**, take out "The Ground Safety Manager"; in **2.13.** take out supervisors. Page 5, Change Signature Block second line from "Colonel" to "Brigadier General". Six pages is now 11 pages.

1. General:

1.1. Background and Overview:

1.1.1. The Occupational Safety and Health Act (OSHA, 29 CFR) requires that employers provide a workplace free from recognized safety and health hazards, including ergonomics hazards (See **Attachment 1** for definitions). OSHA is promulgating a rule that will require establishing an ergonomics program to reduce cumulative trauma disorders (CTDs) arising from the workplace.

1.1.2. The need for increased emphasis on ergonomics is reflected by labor statistics. In 1990, 50% of all occupational illnesses in America were associated with CTDs. The National Institute for Occupational Safety and Health (NIOSH) estimates that five million Americans suffer from CTDs and that by the year 2000, 50% of all workplaces will present a risk for causing these disorders. Currently, CTDs account for more than 16 million lost workdays per year. Estimated costs to employers for CTDs are $40 billion per year.

1.1.3. Solving ergonomics problems in the workplace requires interdisciplinary cooperation and resource allocation. It requires emphasis at all levels of command and responsibility. The fundamental issue, however, is very simple. If it's causing pain, it's a problem. Solutions to ergonomic problems are generally very straightforward and common sense. The goal of the program is to identify and solve these problems at the earliest possible stage with the resources available.

2. Responsibilities:

2.1. The Commander, 43d Airlift Wing, will:

2.1.1. Establish an effective ergonomics management program

2.1.2. Appoint the Aerospace Medicine Flight Commander (43 MDG/SGOA) as the Base Ergonomics Manager (BEM).

2.2. The BEM will:

2.2.1. Ensure progress and lessons learned are reported to Air Force Medical Operations Agency (AFMOA) through major commands (MACOMs) semiannually.

2.2.2. Establish a Pope Ergonomics Working Group (PEWG) and will oversee all ergonomic-related activities in the 43d Air Wing units and associated tenants.

2.2.3. Assist commanders in prioritizing projects and resources in order to make the best use of limited funds.

2.2.4. Establish a written, comprehensive ergonomics management plan to implement ergonomic related activities and to make the best use of resources.

2.2.5. Develop/adopt critical pathways or practice parameters for evaluation, medical management, and follow-up of Work-Related Musculoskeletal Disorder (WMD) treated on the installation.

2.3. Commanders will:

2.3.1. Appoint a representative to the Pope Ergonomics Working Group, as requested by the Base Ergonomics Manager.

2.3.2. Ensure that all job activities in their units are reviewed annually to assess the potential for these activities to cause CTDs.

2.3.3. Provide adequate resources to meet the responsibilities in this standard.

2.3.4. Ensure supervisors and workers receive appropriate training on prevention of WMD.

2.4. The Pope Ergonomics Working Group (PEWG) will:

2.4.1. Meet monthly or as directed by the Base Ergonomics Manager.

2.4.2. Review and investigate all diagnosed CTDs.

2.4.3. Develop specific goals and objectives for the base Ergonomics Management Program, and establish mechanisms to implement these goals and objectives. These mechanisms must be detailed and must provide in-depth procedures for work site analysis, hazard prevention and control, medical management, training, and education.

2.4.4. Establish procedures to record and track CTD cases, to prioritize ergonomics resources, to records training and education, and to keep a record of solutions implemented for specific ergonomic hazards.

2.4.5. Serve as a clearing house and resource center for ergonomics, including policies, regulations, manufacturer's education, and to keep a record of solutions implemented for specific ergonomic hazards.

2.5. Medical Treatment Facility (MTF) Commander, in addition to commander responsibilities in **2.1.** will:

2.5.1. Provide appropriate manpower and resources for medical personnel involved in efforts to reduce WMD.

2.5.2. Ensure health care providers properly identify, document, and report occupationally related WMD.

2.6. Chief of The Medical Staff (SGH) will:

2.6.1. Ensure health care providers are cognizant of, and properly trained to, recognize WMDs.

2.6.2. Ensure that health care providers properly identify cases that they suspect to be WMD to Public Health using a SF 513, or electronic equivalent.

2.7. The Chief of Bioenvironmental Engineering (BE) will:

2.7.1. Document work analyses in the industrial case file or facility case file.

2.7.2. Prioritize and perform work analysis.

2.7.3. Assist supervisors in selecting the appropriate control measures to eliminate or minimize ergonomic risk factors.

2.7.4. Evaluate the effectiveness of the implemented controls in eliminating or minimizing risk factors.

2.7.5. At the request of a health care provider, assist the supervisor in modifying the workplace to accommodate the medical restrictions for an existing WMD.

2.7.6. Assist the ground safety manager with investigating incidents when routine risk factors may have contributed to the injury.

2.7.7. Assign risk assessment codes to known WMD hazards.

2.7.8. Submit to AL/OEM copies of reports that describe solutions that have not been described in any guidance and have been effective in resolving hazards.

2.8. The Chief of Public Health (PH) will:

2.8.1. Collect data through passive and active surveillance techniques to determine incidence and prevalence of base ergonomic illness and injury events.

2.8.2. Coordinate with the Director of Base Personnel and Chief, Ground Safety to establish on-going base surveillance process for WMDs.

2.8.3. Review results of reported WMD and risk factor data for trends.

2.8.4. Provide data obtained through passive and active surveillance efforts and trend analysis to the Ergonomics Working Group (EWG) for discussion and actions.

2.8.5. Analyze data for association among ergonomic risk factors, employee discomfort, and reported WMG (if available) and report results to the EWG.

2.8.6. Administer Job Requirements and Physical Demands surveys (JR/PD) to employees in potential problem jobs (when requested by the BEM).

2.8.7. Evaluate the effectiveness of the controls in reducing employee discomfort and WMD incidence through trend analysis, shop visits, and follow-up administrations of the JR/PD (when indicated).

2.8.8. Provide WMD awareness education and training to supervisors (and lesson plans for supervisors to administer training to shop personnel), and to shop workers, health care providers, administrative workers, and other installation personnel as needed.

2.8.9. Provide training which covers description of WMD and the associated ergonomic risk factors, recognition of symptoms associated with ergonomic disorders, the importance of early medical intervention, and local procedures for reporting suspected ergonomics risk factors and WMDs.

2.8.10. WMD awareness education may take many forms including briefings, newspaper articles, brochures, and computer software.

2.8.11. Document JR/PD results in the appropriate workplace case file or facility folder.

2.8.12. Initiate an investigation (when event is reported or referred) and interview the patient to determine if the reported ergonomic disorder is an occupational illness/injury utilizing AF Form 190 (or computer generated version).

2.8.13. Forward the AF Form 190 to BES for further evaluation and a risk assessment.

2.8.14. Make disposition (in coordination with BEM) and record result (substantiated or unsubstantiated) into the Aerospace Medicine Information Management System (ASIMS) Occupational Health computer module (after receiving the AF Form 190 back from BES with their recommendations and risk assessment).

2.8.15. Provide a copy of all AF Form 190s and AF Form 739s for investigation and mishap reporting to Ground Safety.

2.8.16. Ensure the referring physician reviews one copy of AF Form 190 and one copy is placed in the patient medical record. Ensure AF Form 2754 is annotated, if appropriate.

2.8.17. Close out case in ASIMS and electronically forward report to AL/AOE monthly.

2.8.18. Coordinate additional ergonomic education programs with the Health and Wellness Center (HAWC) to ensure program access for supervisors, workers, and other installation personnel as needed.

2.9. Physical Therapy and Occupational Therapy (PT/OT) will:

2.9.1. Participate in the EWG.

2.9.2. Provide information on back injuries, restricted duty, work hardening, stretching exercises, and worker rehabilitation as requested by BE, PH, or Occupational Medicine (OM).

2.9.3. Coach employees to ensure the medical restrictions are incorporated into work practices, as requested.

2.9.4. Assist HAWC and PH with WMD awareness and training, as requested.

2.9.5. Provide caseload information to PH to ensure cases are entered in the data collection system.

2.10. Civilian Personnel (CP) will: Provide PH with civilian WMD data including compensation costs, lost workdays, and restricted workdays.

2.11. HAWC will:

2.11.1. Provide access to awareness education in conjunction with PH.

2.11.2. Tailor training toward specific needs of computer users and describe the proper computer workstation set-up for jobs that require the use of computers.

2.11.3. Provide training and specific conditioning exercises for personnel working in high ergonomic risk areas.

2.12. Ground Safety Manager will:

2.12.1. Participate in the EWG.

2.12.2. Maintain and analyze basic information about injuries and trends in coordination with PH.

2.12.3. Compile basic information about the musculoskeletal injuries, such as the type of work being performed, when and where the incident occurred, the body parts involved, and the classification of the injury.

2.12.4. Assist BE in work analyses, as requested.

2.12.5. Investigate musculoskeletal injuries associated with single incidents.

2.13. Supervisors will:

2.13.1. Participate in the EWG to discuss specific ergonomic problems that relate to their units or workers.

2.13.2. Encourage workers to promptly report signs and symptoms of WMD suspected to be associated with the job.

2.13.3. Assist in identifying ergonomic hazards and stresses in the work area (See **Attachment 1**).

2.13.4. Consult with workers and review improvements that will abate the ergonomic risk factors.

2.13.5. Enforce the use of required measures to control ergonomic risk factors, include engineering controls, administrative controls, work practice controls, and personal protective equipment.

2.14. Air Force Workers who are covered by this standard will:

2.14.1. Participate in the activities designed to anticipate, recognize, evaluate, and control ergonomic risks.

2.14.2. Provide suggestions for improving the work environment regarding potential or actual ergonomic risk factors.

2.14.3. Promptly report to supervisor, musculoskeletal complaints or symptoms suspected to be associated with the job.

2.14.4. Attend WMD awareness education and specific job training as directed.

2.14.5. Comply with the required control measures that reduce ergonomic risk factors.

3. Procedures:

3.1. Work Site Analysis: The purpose of work site analysis is to identify high-risk jobs and tasks, and the specific risk factors associated with them. This identification process must involve workers, supervisors, commanders, and the PEWG.

3.1.1. When requested by the BEM, PH will administer JR/PD surveys to employees in potential problem jobs as directed in paragraph **2.7.6.**

3.1.2. The PEWG will also review, at least quarterly, injury and illness logs kept by PH, Ground safety, and CP for evidence of cumulative trauma disorders.

3.1.3. Other forms of work site analysis may be performed by the PEWG as directed by the BEM. The analysis may include direct observation, videotape review, or both. The BEM will review and document each analysis; drawing conclusions and/or making recommendations based on the findings.

3.2. Hazard Prevention and Control: Prevention and control of ergonomic hazards will be accomplished through a combination of engineering controls, work practices, administrative controls, and protective equipment. When feasible, engineering controls will be the preferred control measure.

3.2.1. Engineering controls are designed to fit the task to the person. These controls include redesigning workstations, work methods, tools, and requirements in order to reduce or eliminate excessive exertion, repetitive motion, awkward postures, and other risk factors.

3.2.2. Work practice controls are those procedures which provide for safe working methods, and which are clearly understood and followed by employees, supervisors, and commanders. These procedures include work techniques, lifting techniques, employee conditioning, regular monitoring, feedback, equipment maintenance, adjustments, modifications, and enforcement.

3.2.3. Administrative controls are intended to reduce the duration, frequency, and severity of exposure to ergonomic hazards. Administrative controls include: reducing total number of repetitions of a task per employee, providing rest periods; increasing the number of employees assigned to task, rotating employees to other tasks that are less stressful, or that use different muscle-tendon groups, and by providing standby/relief personnel to prevent overtime or to compensate for personnel on leave, TDY, training, etc.

3.2.4. Protective equipment is considered a last resort in the control of ergonomic hazards. Where appropriate, the protective equipment must be provided in a variety of sizes, must accommodate the physical requirements of workers and the job, and must not contribute to extreme postures or excessive forces.

3.2.5. For each work center where work site analysis has identified high-risk jobs or tasks, the PWEG, under direction of the BEM, will recommend appropriate controls as described above. Where engineering or design changes are required, commanders and supervisors will take necessary action to implement these changes.

3.3. Medical Management: Medical management for CTDs includes early evaluation, diagnosis, treatment, and measures to prevent their occurrence. The BEM will develop and implement a medical management program for CTDs that include, as a minimum, the following elements:

3.3.1. Periodic workplace walk-through of industrial areas. These visits allow health care providers to maintain contact with employees, and enable them to remain familiar with work practices and procedures.

3.3.2. Identification of restricted buy jobs. The BEM, or a designated physician, will, on a case-by-case basis, identify a list of jobs with low ergonomic risk in order to provide employees restricted duty, which allows injured muscle-tendon groups to rest. Restricted duty jobs will be tailored by the physician to the individual worker's signs and symptoms.

3.3.3. The purpose of health surveillance is the early identification of CTD problems, and preventing their progression to more severe, disabling conditions. The health surveillance program may include the following elements:

3.3.3.1. Prior to assignment to high ergonomic risk areas, as determined by the BEM, employees will receive a baseline health assessment. This is not a screening mechanism, but rather a means of establishing a base against which changes in health status can be compared and evaluated.

3.3.3.2. Post-conditioning Period Assessment: Employees assigned to high ergonomic risk areas will be trained by Physical Therapy in conditioning their muscle-tendon groups prior to working at full capacity. This breaking-in period will be one month or as specified by BEM. At the end of this conditioning period, Physical Therapy will perform a follow-up assessment to determine if conditioning has been successful.

3.3.3.3. Periodic health assessments are conducted every three years for all employees assigned to high ergonomic risk areas, and any other employees identified by the GEM s requiring this assessment. This assessment will be similar to the baseline health assessment.

3.4. Training and Education: The BEM will establish and ergonomics training and education program that includes employees, supervisors, and commanders. The program will ensure sufficient information is provided to enable personnel to understand the types and causes of CTDs, the means of preventing and controlling ergonomic hazards and risk factors, early symptoms, and medical management of CTDs.

3.4.1. Because of the diversity of jobs and tasks, which involve ergonomic risk, all employees will be provided a minimum level of awareness training. The BEM will design this training package and assist commanders and supervisors in providing this training to employees. This information will be disseminated through the Fit Force Working Group, or other medium. This training will be documented on each employee's AF Form 55, Employee Safety and Health Record.

3.4.2. Employees in high-risk areas, as determined by the BEM, will receive more in-depth training and education. The BEM will establish a training program individually tailored to all high-risk

areas, and assist commanders and supervisors in conducting the training. This training will be documented on each employee's AF Form 55.

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Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

Terms

Ergonomics:—Ergonomics includes the study of physiological responses to physically demanding work. Environmental stresses, such as heat, noise, and illumination, complex psychomotor assembly tasks, and visual monitoring tasks. The emphasis is on reducing fatigue by designing tasks within people's capabilities. Ergonomics is an interdisciplinary science that brings together engineering and medicine to analyze the interaction between people and the work environment.

Several principles are fundamental to ergonomics:

-- The human body has limitations, which should be considered the design of any tool, Workplace, or product.
-- Individuals possess different limitations. Good design takes into consideration the diversity of potential users.
-- Musculoskeletal injury is possible when human capabilities are exceeded.

Ergonomic Deficiencies:—Situations in the workplace that over time will adversely affect human health. Manifestations include: extreme posture, excessive force, concentration of stress, and static loading. Also included are the final outcome--pain and/or discomfort, and high incidence of occupational disorders.

Extreme Posture.—Causes include a) Improper reach, arms fully extended-above the shoulder or below the waist; b) improperly designed tools and machine controls--too bulky to hold or difficult to reach without adopting an extreme posture.

Excessive Force.—The worker exerts force to overcome mechanical disadvantage of maneuvering bulky, heavy objects while in an awkward position.

Concentration of Stress.—Stress is force divided by area. The fewer muscles used to deliver the force, the higher the stress placed on the body. Repetitive jobs using short and fast motions are inclined to concentrate the stress. Time is an important factor. Stress applied infrequently is not as harmful as stress occurring throughout the day.

Static Loading.—Body segments are motionless or prevented from changing positions. This causes fatigue and decreased blood flow.

Cumulative Trauma Disorders (CTDs).—Painful and limiting soft tissue failures that result from repeated or continuous application of slight to moderate physical stress over extended periods of time. The result is often damage to the muscles, tendons, joint surfaces, nerves, or other soft tissues.
Work-Related Muscloskeletal Disorders (WMDs). Injury or illness of the muscles, tendons, ligaments, peripheral nerves, joints, cartilage bones and/or supporting blood vessels in either the upper or lower extremities or back, which is not the result of acute or instantaneous events (i.e. slips or falls).

Risk Factors.—Six general categories of ergonomic risk factors are found in a wide range of industrial jobs:

Forceful exertions.
Awkward work postures.
Repetitive motions.
Localized contact stresses.
Whole body or segmental vibrations.

Temperature extremes.

Carpal Tunnel Syndrome (CTS).—A wrist pain syndrome due to soft tissues swelling and resultant compression of the median nerve. Nerve conduction studies are the best diagnostic technique. Individual cases of CTS should be confirmed by nerve conduction prior to having a confirmed diagnosis of CTS.